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Introduction to grey literature

What differentiates ‘grey literature’ from other literatures?

- **Grey literature is not formally** part of ‘traditional publishing cycles.’ Producers include research groups, non-profits, universities and government agencies, to name a few.
- **Grey literature is not widely disseminated** - dissemination of published materials is the goal in traditional publishing. Often, *infrastructure* exists to disseminate this material efficiently.

What are some examples of non-traditional publishing?

- Many organizations in the digital era are creating their own in-house reports, studies, etc.
- **Think of some examples of health organizations that publish grey literature**
  - Locally, provincially, nationally, internationally?
- Librarians adopt pro-active approaches to finding this material through web searching and finding materials that have been self-archived; open access is facilitating access also
- Specialized strategies are still needed to facilitate identification and retrieval.

The field of *grey literature* has evolved into a world of its own with specific research methodologies, vocabularies, systems and solutions. Before exploring these issues in more depth, let’s review some of the major differences between traditional publishing and grey literature:

<table>
<thead>
<tr>
<th>Issues</th>
<th>Grey literature: hard to finds</th>
<th>Published literature: easier to find</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong># of documents being published</strong></td>
<td>Increasing at exponential rate</td>
<td>Increasing, but at a more measured pace</td>
</tr>
<tr>
<td><strong>Speed of production</strong></td>
<td>Instant, due to self-publishing on the web, speed</td>
<td>Slower, due to costs and editing process</td>
</tr>
<tr>
<td><strong>Cost</strong></td>
<td>Low (in most cases), free</td>
<td>High, increasing all the time</td>
</tr>
<tr>
<td><strong>Access</strong></td>
<td>Free, open, immediate in most cases (some $$)</td>
<td>Locked, gated access, $$$ (some OA)</td>
</tr>
<tr>
<td><strong>Quality</strong></td>
<td>Highly variable</td>
<td>Excellent, edited, peer-reviewed</td>
</tr>
<tr>
<td><strong>Findability</strong></td>
<td>Improving but ‘hit and miss’</td>
<td>Generally stable</td>
</tr>
<tr>
<td><strong>Archiving</strong></td>
<td>Difficult due to sheer volume &amp; formats</td>
<td>Also difficult due to legal restrictions, space limitations and selection</td>
</tr>
<tr>
<td><strong>Impact on libraries</strong></td>
<td>New opportunities and roles for search-savvy librarians</td>
<td>Problematic due to legal restrictions, licensing issues</td>
</tr>
<tr>
<td><strong>Role of publishers</strong></td>
<td>Some make content free to be good corporate citizens</td>
<td>Commercial interests based on economic models not scholarly</td>
</tr>
</tbody>
</table>
What is grey literature? Types and classic definitions

Grey literature, aka. Gray literature, fugitive or invisible literature, deep web

Grey literature is defined as ...
"information produced on all levels of government, academia, business and industry in electronic and print formats not controlled by commercial publishing"

ie: where publishing is not primary activity of producing body


"Grey Area" – or “Zone” Think of the grey zone as an in-between metaphor

Definition:
‘An ill-defined area that does not conform to an existing category or set of rules.’

Oxford English Dictionary

“Grey literature’ is used to describe materials not published commercially or indexed by major databases. While GL may be of questionable quality it has been shown to have an impact in research, teaching and learning. Sometimes, GL is the only source of information for specific research questions. While some GL may be published eventually, and may be easier to find, sometimes it never is. GL may not go through a peer-review process, and its authority must be scrutinized. “

“Fugitive", hidden, invisible or literature in the deep web may be on government sites, deep in archives, institutional repositories, theses databases, conference sites, associations. Informal communication is changing the notion of grey literature which is expanding to include e-mails, faxes, blog postings, wikis, RSS feeds and podcasts.”

Searching for grey literature

http://toby.library.ubc.ca/subjects/subjpage2.cfm?id=877

Traditional grey literature

1. Theses and dissertations
2. Census, economic and other “grey” data sources
3. Databases of ongoing research
4. Statistics and other data sources
5. Conference proceedings and abstracts
6. Newsletters
7. Research reports (completed and uncompleted)
8. Technical specifications, standards, and annual reports
9. Informal communication (i.e. telephone conversations, meetings, etc.)
10. Translations
Newer types of grey literature (technology-based)

1. e-prints, preprints
2. electronic networked communication
3. blogs and podcasts (audio) or video on the web
4. repositories
5. listserv archives
6. digital libraries
7. spatial data (ie. Google Earth)
8. meta-searching, federated searching, portals
9. wikis, Twitter, other social media?

Producers of grey literature

- Government departments and agencies (ie. municipal, provincial, national)
- Non-profit economic and trade organizations
- Academic and research institutes
- Societies, political parties
- Libraries, museums, archives
- Businesses and corporations
- Freelance individuals, i.e. bloggers, consultants, web 2.0 enthusiasts

Other issues that pertain to grey literature

- Grey literature provides very current perspectives
- Complements or fills in gaps of traditional publishers
- Unconventional formats (ie. pamphlets, ephemera, blogs)
- Lack of standard bibliographic description/control
- Short life-cycle of the information

Library & information research into grey lit (GL)

Librarians and information specialists are the acknowledged experts in the area of grey literature. One expert, Julia Gelfand, is an applied sciences librarian at the University of California; she has studied grey literature for many years and has presented at the international GL conferences (See bibliography). Her research includes searching, preservation and scholarly communication.

Canadian health librarians at CADTH (Canadian Agency for Drugs and Technologies in Health) have developed at least two grey literature documents. 1) the helpful list on sources of grey literature entitled Grey Matters: a practical search tool for evidence-based medicine; 2) a checklist of search strategies entitled PRESS: Peer Review of Electronic Search Strategies which focuses on how to develop reliable lists of resources for literature searching in systematic reviews. Health librarians at the University of Alberta are involved in developing better ways to search for the grey literature. U.S. librarian Marcus Banks has published papers about the positive impact of open

The major search engines Google, Yahoo and Bing (GYB) help to uncover grey literature and make it accessible. Banks’ research suggests that barriers to finding grey literature are slowly coming down. Gary Price, a search expert, said some years ago that “public information on the deep Web is currently 400 to 550 times larger than the surface Web.” In light of institutional repositories and open archives, perhaps the deep web is more accessible than ever but much information continues to be locked away there behind commercial (or password-protected) databases.

The grey literature of health fares better than some disciplines. However, health-related conference proceedings, abstracts and government reports in the pre-digital era continue to be difficult to locate. The Web provides access to billions of online pages, but not all relevant health information is digitized. Health librarians should work toward improving access to older materials, which, arguably, are some of the more ‘hard to find’ grey literature.

Some examples of grey literature librarians have written about:
- Systematic reviews, clinical trials and other in-house research covering health and wellness issues are issued by universities, medical schools, and organizations.
- Environmental organizations distribute publications to gain support for conservation of wildlife and natural resources and to promote greater environmental awareness.
- Geological and geophysical surveys, maps, fossil records, and locations of minerals and ores are among the items of grey literature used by geologists to support their research.
- Grey literature in technological fields such as aeronautics and engineering may include contractor and technical reports, product codes and standards, publications and patents.

Do you know about the HTAi Vortal developed by health technology assessment (HTA) librarians? http://www.htai.org/index.php?id=229

”...the mission of HTAi is to support and promote the development, communication, understanding and use of health technology assessment (HTA) around the world...”
Grey literature in medicine

Effective searching of the grey literature is a professional skill usually undertaken by health librarians and information specialists. The aim of this searching is to be as thorough as possible and to achieve complete recall – but sometimes recall is sacrificed to precision if the topic warrants such an approach.

Researchers doing systematic reviews (SRs) or meta-analyses must ensure that every applicable clinical study is found. The focus is on exhaustiveness, and leaving no stone left unturned. Systematic reviews in medicine have become useful tools for health professionals in view of the massive amount of biomedical information being published. These reviews of the literature provide useful digests of the medical evidence.

It is imperative that information specialists create good search strategies and execute them accordingly for medical trials and studies. When a structured search is not performed, the results of the SR may be affected. Studies in other languages or those not indexed by major tools must also be located to avoid skewed results, and publication bias. In a recent study, it was estimated that an additional 29.2% items were found by using extended search methods in addition to mainstream sources. (see Savoie et al).

Some researchers suggest that SRs that include grey literature of uncertain quality may actually jeopardize the findings of reviews. This is where rigorous inclusion criteria will ensure that only the most relevant studies make it into the final analysis. It is therefore a common occurrence that high numbers of studies retrieved by the librarian may not make it into the final review assessment.

Researchers showed that there are consequences (and even risks) associated with generalizing the importance of grey literature to avoid publication bias. (See Martin et al. Is grey literature essential for a better control of publication bias in psychiatry? An example from three meta-analyses of schizophrenia. European Psychiatry 2005 Dec;20(8):550-3.) More recently, a 2007 systematic review in the Cochrane Library entitled Grey literature in meta-analyses of randomized trials of health care interventions by Hopewell et al found that grey trials are required for the systematic review in order to minimize the risk of introducing bias into the review.

Major trends in searching grey literature

Open access to materials and institutional repositories is revolutionizing libraries and grey literature searching. Despite this improvement, some materials may still be hard to find. All librarians and information specialists have personal stories about the elusiveness of conference proceedings, symposia proceedings, abstracts and reports.
The emergence of search engines has helped to index (i.e. make findable) much grey literature. But searching carelessly using Google creates other problems for information specialists when important documents are missed. Even though the Web is estimated to be a trillion pages, its functionality as a search space is limited due to its method of organization.

Computer algorithms have helped considerably to improve the performance of search engines. Google’s Pagerank uses popularity (“link love”) as a means to rank results with the idea that important items rise to the top. But by placing popular materials near the top of the display, most searchers do not look beyond the first screen of results – let alone the second or third page.

As librarians are aware, relying on popular documents that rise to the top of search results is not a recommended search strategy. Important documents may be retrieved via search engines, but some grey literature may ultimately be hidden within results, down several pages or not visible at all due to a relative lack of popularity.

Repositories (e-prints, preprints, etc.)

Here are a few examples of repositories that can be searched to find preprints, e-prints, etc.

- ARL Directory of Scholarly Electronic Journals
- BioLine - open access to research in developing countries
- CARL Institutional Repository Search Service and browse select Canadian IRs
- Daedalus Project UK - IR model using ePrints, DSpace and PKP Harvester software
- DSpace Federation - open-source software to preserve and distribute scholarly research
- eScholarship Repository - University of California
- Harvard DSpace Archive
- NIH Public Access Project - ensures publicly-funded research is freely available.
- OAIster - University of Michigan – all records now in WorldCat
- OpenDOAR - the Directory of Open Access Repositories
- Open Access Bibliography - Charles Bailey
- Open Archives Initiative
- Science Commons - new forms of scholarly communication for scientists
- Simon Fraser University's IR Project - selected SFU faculty research
- SFU Public Knowledge Project
- University of Toronto Research Repository

Self-archived articles

Faculty members and researchers are voluntarily self-archiving their work in academic repositories – however, this continues to be a challenge. Most academic environments do not require
mandatory archiving which means that most repositories are missing much of the work produced by the institution. Some staff and faculty feel that they are too busy to comply or that there is a lack of knowledge about how to self-archive their publications.

**Impact of open access/open searching**

Trends in digitization and open access have given rise to institutional repositories (IRs). IRs help to preserve unpublished information (e.g. lectures, data sets, research papers, electronic theses, etc.) and provide reliable access to scholarly items. IRs have the potential to promote scholarly publishing and the open access movement. For further background on this topic, see the Berlin Declaration on Open Access and the Open Access Initiative. For current debate or news, see Peter Suber's Open Access News blog and the OA Librarian. (HLWIKI Canada also has helpful files on Open Access in Canada and Open Search).

**Grey literature retrieval in mainstream databases**

A few examples:

- PubMed – “out-of-scope”
- CINAHL – selectively indexes nursing theses, dissertations
- References and bibliographies in Cochrane Reviews
- CENTRAL database of clinical trials; all are hand-searched
- NLM Gateway, Entrez portal
- IndexCat – selective historic medical articles from 1880-1961
- Health & psychosocial instruments (HAPI)
- MDConsult
- Proquest Dissertations Abstracts
- PapersFirst
- Google Scholar

**Methods of finding grey literature – an iterative process**

- Database searching (including specialized databases & search portals)
- Searching in obscure or small library catalogues
- Hand-searching ‘high impact’ and relevant specialist journals
- Personal communication (i.e. telephone, email, etc.)
- Scanning reference lists ‘snowballing,’ bibliographies and academic CVs
- Googling (Google, Google Scholar, Scirus)
- Other search tools i.e. Yahoo, Bing, Twitter
- Blogging (finding the experts); blogsearching
- Podcast searching, specialized directories
Scoping your search for grey literature

1. Currency of topic / subject area

Is your topic current? In a cutting-edge area? Is it Canadian? Of national or local interest? If your topic is about HIV infection and incidence in Vancouver’s downtown eastside, this will limit the sources of information available to you. Geographic and national restrictions, public safety and intellectual property laws will limit access to certain types of information. A barrier to identifying and accessing some GL topics is the librarian’s lack of familiarity with the subject, its indexing practices and search tools. It may be necessary to learn about the subject as well as how to find it.

2. Form

Are you seeking bibliographic references with immediate full-text; primary sources (raw clinical data, documents, publications); secondary sources (analysis, editorials); tertiary sources (EBM summaries, large reviews, digests); or comparable and/or comparative data and information?

3. Subject-based approach

In a subject-based approach, identify possible sources of information (databases, websites, experts) and, for interdisciplinary topics, facets of the topic (business, economics, engineering). It might be helpful to develop an understanding of your topic using a hierarchical approach.

Exercise: How would you organize your topic of treatment of prostate cancer using the following?

- Broadening – Narrowing: could you use MeSH?
- Related – Library of Congress Subject Headings LCSH?
- Used for – Other vocabularies?

Information needed on your subject may include social, economic, political, psychological, legal and ethical perspectives, and influenced by identifiable groups and agencies. Gender, age, disease or condition are/may be important. Ethnic, religious, cultural issues may also be pertinent.

Do you know about GreyNet? - http://www.greynet.org

This website seeks "to facilitate dialog and communication between persons and organizations in the field of grey literature." It includes information about the International Conference Series on Grey Literature and provides extensive lists of grey literature publications and resources.
Applying Five (5) Steps of Evidence-Based Medicine to Grey literature searching
Centre for Evidence Based Medicine (CEBM)
http://www.cebm.net/

**Figure 1: How to develop a search strategy (example)**

1. **Question:**

   “In men aged 65 yrs of age with stage IV prostate cancer, are there any RCTs comparing radiation, hormone (chemotherapy) with either treatment alone?”

2. **Break down question into facets using PICO (or similar framework):**

   - **Population**
     Aged men, prostate cancer, stage IV, advanced
   - **Intervention**
     Radiation and/or chemotherapies
   - **Outcome**
     Pain control, prolonged survival
   - **Study design**
     Randomized controlled trials (RCTs)

3. **Identify textwords, keywords, synonyms, spelling variants, wildcards, subject headings for each aspect or facet of the clinical question**

**Building a search strategy / checklist**

A well-organized checklist and search strategy will help to maintain focus and direction in your searching. Many librarians and researchers have developed protocols and checklists to build strategies. Bidwell and Booth have created a search protocol that is useful for documentation. [http://www.shef.ac.uk/scharr/ir/proto.html](http://www.shef.ac.uk/scharr/ir/proto.html) The Canadian Agency for Drugs and Technologies in Health (CADTH) and other agencies such as AHFMR have developed comprehensive checklists for searching (see Appendices). When building a search strategy, it is important to select terms specifically for each topic and source of information. In using mainstream databases, it is advisable to draw from a list of keywords and variations developed prior to starting the search.

To be consistent and systematic, use the same keywords and strategy. It is important to create a strategy, compile a list of keywords, wildcard and truncation combinations and identify organizations that produce *grey literature* before you begin.
**Tips and tricks on building a search strategy and checklist**

- Construct a checklist with tables from left to right
  - Indicate which databases have been searched and when
  - List all websites browsed, with affiliated organizations & web addresses consulted
  - Formulate or refine your search strategy, and modify as necessary
  - Note when (date) all searches were conducted
  - Use comments column to note when databases/websites are updated

- List databases in priority order: MEDLINE, EMBASE, CINAHL, PsycINFO, Web of Science
- Record index terms, qualifiers, keywords, truncation, wildcards
- Recall *increases* when searching by keyword. Improve *precision* by searching in titles only
- Record when 0 hits are obtained. Compare hits in other databases
- Check variant spellings and make note of differences in Canadian, American or British English
- Save long search sets in PubMed or by using OvidSP’s saved search feature
- Import citations into a **bibliographic management tool** such as RefWorks

**Documenting reproducible searches**

Grey literature is increasingly referenced in journal articles and academic work of all kinds. Knowing how to find it is essential for academic or special librarians who perform literature reviews. That said, many librarians fail to develop structured approaches to find this literature, and spend an inordinate amount of time re-doing searches over in tools like Google Scholar.

Major abstracting & indexing (A&I) services *do not* systematically index grey literature. Even when databases index materials there are no guarantees searchers will find this material. To compensate for human indexing error, hand searching and digital browsing will supplement your searches. Hand searching is recommended for systematic reviews (SRs) due to the hazards associated with missed studies and the shortcomings in some index practices.

A number of issues pose challenges to searchers (obtaining documents once they are found for example). It is advisable to document your steps so that your progress can be (re) traced. Consider **bibliographic management tools** such as RefWorks to assist you in building your database of citations. Your documentation should include organizations and individual researchers that you contacted. An important reason to document your search is *reproducibility* – and if called upon to reproduce your search results, you can do so by consulting your strategy that you developed.
Case study

Acupuncture in the management of drug & alcohol dependence

“Is acupuncture effective in managing drug and alcohol dependence?” The goal is to find as many randomized controlled trials (RCTs) as possible and perform a meta-analysis.

Start with mainstream databases

- Medline / PubMed – an international biomedical database indexing ~5400 journals from 1966 to present (1948-1965 in OLDMEDLINE). Commercial vendors include EBSCO, OvidSP, etc. PubMed is the free interface linking to PubMed Central and other NCBI databases.
- Embase – an international database of ~5200 biomedical journals produced by Elsevier with a strong emphasis on European pharmaceutical information back to 1974.
- CINAHL – cumulated index to nursing and allied health literature.
- Cochrane Database of Systematic Reviews – full-text database of Cochrane systematic reviews and protocols
- BIOSIS (Biological Abstracts)
- PsycINFO
- Sociological Abstracts
- CAM on PubMed
- AMED – Allied and Complementary Medicine Database. See the Ovid field guide.

Tip!
Starting research in mainstream databases will gather a large number of items. Duplicates need to be pulled from the above databases as there may be substantial overlap. Be sure to manage the problem by using a bibliographic software tool like RefWorks to eliminate duplicates.

Directories & Organizations

Contacting relevant organizations is an excellent way to discover what resources exist (i.e. special deep-web databases, library catalogues not crawled by Google, etc.). Some websites have resources to provide a “jumping off” point for your search. If you are unfamiliar with your topic and don’t know what organizations exist in a field, there are a number of print or online directories that will help to focus your search efforts, and guide you along the way.

1. ECRI Healthcare Standards (print or online subscription)
2. OMNI - http://omni.ac.uk/
3. Yahoo Search OR Google Search (keywords: Acupuncture, Organizations or Internet Resources ALSO alternative medicine databases)
For our topic, here are some examples of organizations that are relevant:

- ETOH - Alcohol and Alcohol Problems Science Database
- National Institute on Alcohol Abuse and Alcoholism (NIAAA)
- National Institute on Drug Abuse (NIDA)
- Canadian Centre on Substance Abuse (CCSA)
- National Center for Complementary and Alternative Medicine (NCCAM)
- National Acupuncture Detoxification Association (NADA)
  [http://www.acudetox.com](http://www.acudetox.com)

**Searching specialized databases**

It is advisable to organize keywords before searching. This means taking an approach that is methodical, and using keyword and wildcard combinations. Developing a structured, organized approach is important. Most specialized databases will have varying search interfaces and search functions but it is a good idea to try to be as systematic as possible.

Possible keyword combinations are:

- acupuncture, meridian, acupressure, electroacupuncture, shiatsu, drug,
- polydrug, substance, alcohol, tranquilize, tranquilizer, narcotic, opiate,
- solvent, inhalant, street drug, prescri, non-prescri, nonprescri, abuse, use,
- usin*, misus*, utiliz*, utilis*, depend, addict, illegal, illicit, habit, withdraw,
- behavio*, abstinen*, abstain*, abstention, rehab, intox*, detox, dual, diagnosis, disorder

**Database examples:**

- Traditional Chinese Drug Database (TCDBASE)
- Canada Thesis Portal
  [http://www.collectionscanada.ca/thesescanada/index-e.html](http://www.collectionscanada.ca/thesescanada/index-e.html)
- Networked Digital Library of Theses and Dissertations (NDLTD)
- Drug Database (Alcohol and other Drugs Council of Australia)
- Canadian Centre for Substance Abuse
  [http://www.ccsa.ca/CCSA/EN/Addiction_Databases/LibraryCollectionForm.htm](http://www.ccsa.ca/CCSA/EN/Addiction_Databases/LibraryCollectionForm.htm)
Searching Library Catalogues

Library OPACs (Online Public Access Catalogues) in academic, specialized and public libraries are excellent sources of grey literature. Catalogues provide access to local and regional materials, and inform researchers that they exist. Library catalogues are fertile sources for bibliographic verification and resource discovery in grey literature searching. Many library catalogues index dissertations, government and technical reports, particularly if the authors are affiliated with the parent organization as scholars or researchers.

Here are a few examples for the acupuncture topic:

- AMICUS  
  http://amicus.collectionscanada.ca/aaweb/aalogine.htm
- The Lindesmith Library (drug policy alliance)  
  http://library.soros.org/lindesmith.html
- Centre for Addiction and Mental Health Library  
  http://library.camh.net/webopac/cgi/swebmnu.exe?act=3&ini=splus113
- Your Local Library
- CISTI library catalogue  
  http://cat.cisti.nrc.ca/search
- WorldCat  
  http://toby.library.ubc.ca/resources/inopage.cfm?id=84
- Canadian Centre for Substance Abuse (Library Collection)  
  http://www.ccsa.ca/ENG/KNOWLEDGECENTRE/LIBRARY/Pages/default.aspx

Searching repositories (e-prints, registries, etc.)

Here are a few examples for the acupuncture topic:

- arXiv.org (Cornell University)  
  http://arxiv.org/
- ClinicalTrials.gov  
  http://clinicaltrials.gov
- Cog Prints  
  http://cogprints.org/
- Directory of Open Access Journals  
  http://www.doaj.org/ljbs?cpid=78
- E-Print Network  
- National Research Register  
  https://portal.nih.ac.uk/Pages/NRRArchive.aspx
- NCCAM Grantee Publications Database  
  http://www.nccam.nih.gov/cgi-bin/bibliography.cgi
- NetPrints  
  http://clinmed.netprints.org/home.dtl
- Scientific and Technical Information Network (STINET)  
  http://stinet.dtic.mil/
Effective searching for grey literature combines targeted searching of key websites and general culls of the Web. Google, Google Scholar, Yahoo and Windows Live or meta- & federated search tools like Dogpile are useful. Blogs help to identify experts and see what types of discussions are currently happening on the blogosphere. Phone, fax, e-mail is a further means of obtaining more information on your topic, though it is difficult to track and record personal communications. The key is not to rule anything out, not even tweets.

**Hand-searching journals or scanning reference lists (manually or online)**

Targeted hand searching of relevant publications is a useful technique. Hand searching supplements what may not have been found through conventional retrieval methods. It is also an important way to find articles missed by databases or located in reference lists and bibliographies.

Hand-searching is a means to locate recent publications not indexed or cited by others. In systematic reviews, hand searching is conducted by a researcher or information specialist. Check Cochrane’s handsearch list to ensure that the journal or conference is not already covered by CENTRAL <http://www.cochrane.org/resources/hsearch.htm>. Another effective way of scanning the literature is to identify experts and find online publication lists. This will reveal items that are “grey” as academics load their CVs onto web sites and create teaching and research portfolios to disseminate their work.

**Internet / Google searches / Portals**

- Google [http://google.ca](http://google.ca)
- Yahoo [http://yahoo.com](http://yahoo.com)
- Librarian’s Internet Index [http://lii.org/](http://lii.org/)

Some relevant vertical search engines, or vortals, with medical/health content:

**Google Scholar** – [http://scholar.google.com](http://scholar.google.com)

Google Scholar enables you to search specifically for scholarly literature including peer-reviewed papers, theses, books, preprints, abstracts and technical reports from all broad areas of research. GS is used to find articles from a wide variety of publishers, professional societies, preprint repositories and universities, and most recently legal materials.

**MedlinePlus** – [http://medlineplus.gov](http://medlineplus.gov)

MedlinePlus is a free consumer website at the National Library of Medicine listing information on diseases, drugs, clinical trials, definitions, health organizations and news for ~800 topics. Extensive links to images, slideshows, videos and encyclopedia are included for common diseases, tests, symptoms, injuries and surgeries, and brand and generic drug information.
PubMed

PubMed.gov is the US National Library of Medicine's freely searchable database - the premier international index to biomedical research covering almost 5000 journals and indexing more than 19 million citations. Key sections include: 1) PubMedCentral's free journal database; 2) genomic search tools; 3) more than 5400 fulltext e-journals; 4) MEDLINEplus and 5) NCBIfreeBookshelf.

SCIRUS (scientific, technical, medical information) http://scirus.com

Scirus is a science-specific search tool with results from 500 million Web pages, including sites that other search engines don't index. Scirus crawls: ArXiv.org, Biomed Central, Caltech, Cogprints (via OAI), Project Euclid, Crystallography Journals, LexisNexis, MIT OpenCourseWare, NASA technical reports, NDLTD, MEDLINE, PubMed Central, RePEc, ScienceDirect, Scitation, SIAM and T-Space.

Some other possible search sites and databases:

- ACM Digital Library
- Agricola - agriculture and allied disciplines
- arXiv - Physics, Mathematics, Computer Science, Quantitative Biology and Statistics
- CiteSeerX - computer and information science
- DiscoverEd @ Creative Commons
- Drug Industry Document Archive (DIDA) NEW!
- Entrez - Life sciences search engine - meta-search tool
- ERIC Education Search - education research
- FUSE — a business research engine
- GoPubMed - knowledge-based search engine for biomedical texts
- HighWire Press - Largest Repository of Free Full-Text Life Science Articles
- IngentaConnect - a range of items across academic disciplines
- JURN: A curated academic search-engine
- Lalisio literature -ArXiv.org, PubMedCentral & IngentaConnect
- NLM Gateway - search all NLM files, biomedicine, bioinformatics
- POPLINE - reproductive health literature 1970-present (some citations from 1886)
- PubMedCentral - open access repository in biomedicine
- PubMedCentral Canada
- Science Commons
- ScienceDirect - 10 million+ articles across science and humanities
- Scirus - science, Elsevier content, PubMed
- Scitopia - science-technology, plus patents and government data
- SumSearch - evidence-based meta-search tool, U.S.
- Transportation Research Information Services (TRIS) Database
- TRIP Database - evidence-based meta-search tool, U.K. content
- WolframAlpha - Computational Knowledge Engine - trillions of pieces of curated data and millions of lines of algorithms NEW!
## Grey literature worksheet (sample)

<table>
<thead>
<tr>
<th>Database, organization, website</th>
<th>Gateway, pathfinder, guide to topic?</th>
<th>Date searched</th>
<th># of hits or relevant documents</th>
<th>Notes, observations</th>
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Appendix A

Health tests, measurement scales and questionnaires

• How do I find these hard-to-finds? Identifying Tests
  ▫ Medline
  ▫ Health & psychosocial index (HAPI)
  ▫ ERIC, PsycINFO
  ▫ Tests and Measures in the Social Sciences (librarian-compiled)
    http://libraries.uta.edu/helen/test&meas/testmainframe.htm

• Locating reviews and critiques of tests
  ▫ Buros Center for Testing  http://www.unl.edu/buros/
  ▫ Finding tests in monographs or journal articles

• Finding Tests
  o Buros/ERIC Test Publisher Directory
    http://ericae.net/testcol.htm#Testpub
  o ERIC Clearinghouse on Assessment and Evaluation
    http://www.eric.ed.gov/
  o Association of Test Publishers
    http://www.testpublishers.org/memserv.htm
  o Educational and Industrial Testing Service
    http://www.lights.ca/publisher/db/6/1946.html
  o ERIC Test Publisher Directory
    http://ericae.net/testcol.htm#TestPub

• Follow-up
  o Dictionaries, handbooks & encyclopedias
  o Sample websites
    ▫ Kiersey Temperament and Character Website (MBTI)
      http://keirsey.com/
    ▫ Goldberg's Depression Scale
      http://www.psychcentral.com/depinv.htm
    ▫ Goldberg's Mania Scale
      http://www.psychcentral.com/mancinv.htm
    ▫ Personality and IQ Tests
      http://www.davideck.com/links/IQ.html
    ▫ Tests, Tests, Tests...
      http://www.queendom.com/tests.html
    ▫ Personality Pathways
      http://www.personalitypathways.com/
Appendix B

Example Resources: Pandemic influenza (PI)

**Information gateways to grey literature on PI:**

**MEDLINEplus: Bird Flu** (National Library of Medicine)

**Resource Guide for Public Health Preparedness** (New York Academy of Medicine)
http://www.phpreparedness.info/
*Guide* provides single point of access to resources in public health, and disaster preparedness.

**Canadian resources**

**Public Health Agency of Canada – Avian influenza**
http://www.phac-aspc.gc.ca/influenza/avian_qa_e.html

**U.S Resources**

**PandemicFlu.gov / AvianFlu.gov** (Dept of Health and Human Services)
http://www.pandemicflu.gov/
One-stop access to U.S. Government avian and pandemic flu information. Information on confirmed cases worldwide, planning documents and tools.

**National Strategy for Pandemic Influenza** (Homeland Security Council, The White House)
http://www.whitehouse.gov/homeland/pandemic-influenza.html

**CDC – Influenza (Flu)** (Centers for Disease Control and Prevention)
http://www.cdc.gov/flu/
The CDC’s page contains general influenza information, including information for the lay public.

**International Resources**

**Avian Influenza** (World Health Organization)
http://www.who.int/csr/disease/avian_influenza/en/
The World Health Organizations main avian influenza page with links to:

**Pandemic Influenza** (Pan American Health Organization)
Official pandemic influenza page of the Pan American Health Organization.

**Bird Flu (Avian Influenza)** (Mayo Clinic)
Example Resources: Smoking prevention

Scenario:
You’ve been asked to find documents about smoking prevention strategies for teenagers

Questions to consider:
- Where will I start to look for grey literature?
- What do I know about the organizations listed below?
- Are there institutions studying this topic in Canada? Any experts I can contact?
- Is the quality of information better at certain sites outside of Canada?
- How would searching the major databases help you?

Resources: Government organizations

Canadian Public Health Association

Health Canada

Quit for Life
- http://www.quit4life.com/

Public Health Agency of Canada

General search engines

Try various combinations of ‘smoking prevention’ AND programs AND ‘teens OR adolescents’:

Bing http://bing.com
Google Canada http://google.ca
Kosmix http://kosmix.com
Yahoo Canada http://yahoo.ca
Appendix D
Miscellaneous librarian-recommended websites

Canada

- Alberta Innovates-Health Solutions. (formerly AHFMR) http://www.ahfmr.ab.ca/publications/
- Canadian Agency for Drugs and Technologies in Health (CADTH) http://www.cadth.ca/
- Canadian Electronic Library http://www.canadianelectroniclibrary.ca/
- Canadian Evaluation Society http://www.evaluationcanada.ca/
- Canadian Institute for Health Information (CIHI) http://secure.cihi.ca/cihiweb/splash.html
- Centre for Evaluation of Medicines (Father O’Sullivan Research Centre, Hamilton Ontario) http://www.thecem.net/
- CMA Infobase http://www.cma.ca/index.cfm/ci_id/54316/la_id/1.htm
- Fraser Institute http://www.fraserinstitute.org/researchandpublications/
- The Hospital for Sick Children. Paediatric Economic Database Evaluation (PEDE) http://pede.bioinfo.sickkids.on.ca/pede/index.jsp
- Knowledge Utilization - CHSRF/CIHR Chair on Knowledge Transfer and Innovation (Quebec) http://kuuc.chair.ulaval.ca/english/index.php
- National Library and Archives Canada (Dissertations, theses, etc.) http://www.collectionscanada.gc.ca/thesescanada/index-e.html
  - Amicus http://amicus.collectionscanada.gc.ca/aa-web/alogine.htm
- PEDBASE http://pedbase.org/
- Portal for Public Policy http://www.portalfornorthamerica.org/additional-resources
- Therapeutics Initiative. Evidence Based Drug Therapy. University of British Columbia http://www.ti.ubc.ca
- WorkSafeBC (Evidence Based Medicine) http://www.worksafebc.ca/evidence

United Kingdom

- Bandolier - Evidence based thinking about health care http://www.medicine.ox.ac.uk/bandolier/
- Intute - Institutional Repositories http://www.intute.ac.uk/irs/
- National Institute for Health and Clinical Excellence http://www.nice.org.uk/
- UK’s NHS Evidence: http://www.nice.org.uk/nhsevidence/
United States

- Institute for Clinical Systems Improvement [http://www.icsi.org/guidelines_and_more/]
- National Guideline Clearinghouse (NGC) [http://guidelines.gov/]

International

- BIREME (Latin America and the Caribbean on Health Information) [http://regional.bvsalud.org/php/index.php]
- Grey Literature International [http://www.greynet.org] and
- INAHTA – International Network of Agencies for Health Technology Assessment (Australia) [http://www.inahta.org/]
- OpenSIGLE in Europe [http://opensigle.inist.fr]
- Physiotherapy Evidence Database [http://www.pedro.org.au/]
- World Health Organization (WHO) [http://www.who.int/en/]
- WHO AFRO [http://indexmedicus.afro.who.int/cgi-bin/wxis.exe/iah/?IsisScript=iah/iah.xis&lang=I&base=AIM]

“Did you know that 700 000 records of the unique European database on grey literature SIGLE migrated to an open access environment called OpenSIGLE in 2010?”

[http://opensigle.inist.fr]
Selective ‘Grey Literature’ Bibliography


Articles not indexed in traditional databases are grey literature. Anderson describes access problems and efforts of the National Library of Medicine (NLM) to improve access to grey material.


Auger describes grey literature as “difficult-to-define” and not available through regular channels. He concentrates on identifying, tracing and acquiring publications. He includes a discussion on the nature of grey literature and methods of bibliographic control, cataloguing and indexing. Individual chapters include aerospace, life sciences, business and economics, education, energy, and science and technology. A list of international organizations dealing in grey literature appears at the end.


The potential of open access (OA) to increase visibility of peer-reviewed literature is worth discussion. We must not forget the challenge of providing access to gray literature to complement peer-reviewed research. We do not need to launch a movement to obtain this material. However, our challenge is to develop resources of depth comparable to peer-reviewed scholarship.


The distinction between grey and non-grey (or white) literature is becoming less relevant over time as online options proliferate. In the meantime, the political success of the open access movement has valuable lessons for proponents of improving access to grey literature.


State-of-the-art reviews are broad in scope and include unpublished research. Decisions about whether to include "grey literature" are challenging. Despite the challenges, inclusion of grey literature is a valid part of evidence reviews. The authors created a checklist to assist in decision-making to determine whether it is advantageous to include grey literature in a review.


A lot of grey literature is available to nurses, including oral presentations, leaflets, newspapers and magazines, unpublished research, internal reports. It can be an invaluable research resource.
Gelfand, Julia M. (1998). Teaching and exposing grey literature: what the information profession needs to know - examples from the sciences. Collection Building 17 (4): 159-166.

Gelfand is a U.S. applied sciences librarian who writes about grey literature. Here she describes the progress made in exposing it online and the impact of the Web and its implications for scholarly communication.


This paper analyzes collections in terms of their ‘greyness’ and academic output from nine campuses of the University of California. Institutional repositories such as UC’s Institutional Repository as hosted by the California Digital Library (CDL) contains thousands of documents http://repositories.cdlib.org/escholarship/. The author develops a five-point scale to describe content and to determine whether it is grey or not. IRs add prestige and visibility to resources and may be available digitally and thus remotely and have perpetual access. Whether IRs support new publishing models is open for question but they do inject life into locating the grey literature.


Much social policy is “grey” literature because it is issued by public organizations, think tanks, university-based institutions and organizations. This research examines social work subject guides and their links to social policy. A coding scheme was developed to count pathways to social policy grey literature. The results suggest much variance across institutions; libraries can do a better job of guiding users to policy organizations that produce reports, briefs and newsletters.


Grey literature (i.e. literature that has not been formally published) in systematic reviews may help to overcome problems of publication bias, which can arise due to the selective availability of data. Published trials tend to be larger and show an overall greater treatment effect than grey trials. This has important implications for reviewers who need to ensure they identify grey trials to minimize the risk of introducing bias into their reviews.

Joyce, J. et al. Canadian Agency for Drugs and Technologies – Checklists.

The Canadian Agency for Drugs and Technologies in Health (CADTH) produces a checklist of websites and information sources <http://cadth.ca/index.php/en/home> for librarians and information specialists who are searching for grey literature.

Much grey literature is produced at large multidisciplinary research organizations. This paper examines how grey literature may be managed. Trends in Technical Reports, which has been an important series, is examined and use of an institutional repository is advocated for the future. Other grey literature produced in research projects is described and the institutional repository is seen as an important mechanism for preserving and making documents accessible.


The purpose of this paper is to understand how electronic grey literature is being incorporated into Women's Studies collections at academic libraries. Specific databases and web sites found in the four library collections studied are mentioned so that other libraries may use the information to enhance their own access to ‘women’s grey literature’.


Gray or grey literature is defined as material ‘not commercially published’ and includes technical reports, working papers and conference proceedings. The challenge is their identification, indexing, authority and editorial control. Despite these issues, the web has increased the exposure of grey literature as organizations continue to find new ways to provide access.


Grey literature is defined as news clippings, reports, newsletters, listserv discussion, personal contacts and unindexed serials. GL raises "grey questions" and fills in gaps left by peer-reviewed literature. Traditional databases do not index grey literature leaving researchers with some false impressions. The authors recommend a database of grey questions and networking among information providers to find answers.


The author discusses 'gray' literature and what librarians used to call 'the vertical file'. Web content is not making its way into commercial databases and should be enriched with descriptive tagging to increase its subject access. He mentions Google as a search engine that surpasses others in 'indexing' web content and providing access to electronic theses and dissertations (ETD) – even better than most library OPACs.

Extended search methods uncover 29.2% of items retrieved in systematic reviews. Searching specialized databases is effective, followed by scanning reference lists, communicating personally and hand searching. Items identified through hand searching are few in number but not negligible. Expert search methods are effective in uncovering material but the quality of items found should be closely assessed.


Resources of grey literature for communication disorders are geared to practitioners, researchers and consumers. It includes discussion of the methods that specialists use to obtain this literature. Access points and search tools for identifying grey literature about communication disorders are recommended. Commercial databases containing grey literature are not included.